



Hydrologic Engineering Branch, Engineering Division

The Hydrologic Engineering Branch of the Omaha District's Engineering Division, provides engineering and technical design and support to the Corps' civil works, military construction, and hazardous, toxic, and radioactive waste programs. The branch's mission is to support the nation in times of emergency and make technical contributions in all aspects of water resources. The branch maintains expertise in all areas of water resources engineering and science, including hydraulics, hydrology, water quality/control, flood plain/flood risk management and flood damage reduction, navigation, sedimentation, and environmental restoration. We strive to produce creative and innovative solutions to complex water resource problems that meet the constantly changing needs of our customers, and deliver them in a timely and cost-efficient manner.

Capabilities

Flood Plain Management Services Section

- o Flood boundary delineation
- o Floodway analysis
- o Flood risk and flood plain management
- o National flood insurance programs compliance studies
- o Nonstructural flood damage reduction
- o FEMA digital flood insurance rate map development

Hydraulics Section

- o Riverine modeling – steady, unsteady, and two-dimensional
- o Levees and floodwalls
- o Spillways and outlet works
- o Culverts, conduits and drainage structures
- o Diversion structures
- o Hydraulic structure design
- o Inlet control structures
- o Energy dissipation structures
- o Grade control and drop structures
- o Channel improvements and stable channel design
- o Riverine ice analysis

Hydrology Section

- o Statistical analysis of streamflow and meteorological data
- o Derivation of project design storms and floods
- o Watershed and reservoir modeling
- o Snow surveys and snowmelt analysis
- o Water supply and water budget studies
- o Flood warning system design
- o Interior drainage analysis and design
- o Real time flood monitoring and forecasting
- o Dam failure analysis and preparation of emergency action plans
- o Wind and wave analysis
- o Flood emergency response



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Sedimentation and Channel Stabilization Section

- o Sediment Retention Structure Sizing
- o Sediment Deposition and Scour Analysis
- o Stream Erosion Protection Design
- o Hydrographic Surveys
- o Geomorphology
- o Wetlands Habitat Design
- o Channel Restoration
- o Environmental Restoration Design

Water Control and Water Quality Section

- o Regulation of Multipurpose Reservoirs
- o Forecasts for River Flows and Stages
- o Hydro-Meteorological Data Collection
- o Coordination of Reservoir Releases
- o Development of Water Control Plans
- o Collection of Water Quality Data
- o Water Quality Modeling

Recent Projects

- o Glovers Point Bend, Neb. mitigation Project
- o Flood Fight Product Testing
- o Emergent Sandbar Habitat downstream from Gavins Point Dam, S.D.
- o Chatfield Reservoir Storage Reallocation, Denver, Colo.
- o Williston, N.D. Pump Station Upgrade
- o Missouri River Spring Pulse Monitoring
- o Perry Creek, Iowa flood damage reduction project
- o Fort Carson, Colo. flood inundation mapping
- o James River, S.D. flood frequency analysis
- o James River, S.D. flood plain delineation
- o Platte River, Neb. ice-affected flood plain/floodway delineation
- o Antelope Creek, Neb. flood damage reduction project
- o Rocky Mountain Arsenal, Colo. dam failure contingency plan
- o Langdon Bend, Neb. wetlands restoration
- o Denison, Iowa, flood damage reduction project
- o Wood River at Grand Island, Neb., flood damage reduction project
- o Reservoir sediment management study, Gavins Point Dam, Yankton, S.D.
- o Pierre/Fort Pierre, S.D., nonstructural project



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